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REMARKS

In the July 3, 2003 Office Action, the specification was objected to and claims 1-22 stand rejected in view of prior art. No other objections or rejections were made in the Office Action.

Status of Claims and Amendments

In response to the July 3, 2003 Office Action, Applicants have amended the specification and claims 1-22 as indicated above, and added new claims 23-28. Claims 1 and 10 have been amended to more clearly define the present invention over the prior art of record. Claims 3, 5, 7, 8 and 12 have been amended to correct grammatical errors and/or for conformity of claim language, while claims 4 and 6 have been amended to correct typographical errors. Thus, claims 1-28 are pending, with claims 1, 10, 23 and 28 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Drawings

No objections were made to the drawings in the Office Action. However, Applicants have filed herewith one (1) replacement sheet of drawings, including Figure 14. More specifically, Applicants have added the numeral 6k to Figure 14 to clearly identify a first circulation pipe. Applicants have also replaced “6a” with “6a1” to correct a typographical error. Applicants believe that the drawings comply with 37 CFR §1.83(a). Applicants respectfully request approval and entrance of the one (1) replacement sheet of drawings, including Figure 14.

Specification

In the numbered paragraph 1 of the Office Action, the specification was objected to for informalities. In particular, the specification was objected to because it allegedly includes numerous references to claim numbers. In response, Applicants have amended the specification to cancel references to claim numbers. Applicants believe that the specification is now correct. Withdrawal of the objection is respectfully requested.

Rejections - 35 U.S.C. § 102

In the numbered paragraphs 2-4 of the Office Action, claims 1, 8 and 10 stand rejected under 35 U.S.C. §102(b) as being anticipated by Japanese Patent Application Publication No. 9-213672 (Hamano) (hereinafter “Hamano”). In response, Applicants have

amended independent claims 1 and 10 to more clearly define the present invention over the prior art of record.

In particular, independent claims 1 and 10 now clearly recite a device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle *with the nozzle forming individual liquid drops* of the drying fluid *and supplying the liquid drops* of the drying fluid onto a fluid face of a cleaning fluid.

Clearly, this structure is *not* anticipated by Hamano or any other prior art of record. Hamano discloses an IPA solution that flows from an incurrent pore 4 via an IPA inlet 2 through an IPA introduction pipe 3, and then the IPA solution spreads on a face of water that is stored in a rinse tank 1. However, Hamano *fails* to disclose or suggest any device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle *with the nozzle forming individual liquid drops* of the drying fluid *and supplying the liquid drops* of the drying fluid onto a fluid face of a cleaning fluid, as now set forth in independent claims 1 and 10. It is well settled under U.S. patent law that for a reference to anticipate a claim, the reference must disclose each and every element of the claim within the reference. Therefore, Applicants respectfully submit that independent claims 1 and 10, as now amended, are not anticipated by the prior art of record. Withdrawal of this rejection is respectfully requested.

Moreover, Applicants believe that the dependent claim 8 is also allowable over the prior art of record in that it depends from independent claim 1, and therefore is allowable for the reasons stated above. Also, the dependent claim 8 is further allowable because it includes additional limitations. Thus, Applicants believe that since the prior art of record does not anticipate the independent claim 1, neither does the prior art anticipate the dependent claim.

Applicants respectfully request withdrawal of this rejection.

Rejections - 35 U.S.C. § 103

In the numbered paragraphs 5-19 of the Office Action, claims 2-7, 9 and 11-22 were rejected under 35 U.S.C. § 103(a). Specifically, claims 2, 3, 11 and 12 were rejected as being unpatentable over Hamano in view of U.S. Patent No. 5,954,911 (Bergman et al.), while claims 4, 5, 7, 13, 14 and 17 were rejected as being unpatentable over Hamano in view of U.S. Patent No. 6,491,045 (Kamikawa et al.). Also, claims 6, 15 and 16 were rejected as being unpatentable over Hamano in view of U.S. Patent No. 6, 216,709 (Fung et al.), while claims 9 and 22 were rejected as being unpatentable over Hamano in view of U.S. Patent No.

6,123,900 (Vellutato). In addition, claim 18 was rejected as being unpatentable over Hamano in view of U.S. Patent No. 6,152,153 (Takase et al.), while claim 19 was rejected as being unpatentable over Hamano in view of U.S. Patent No. 6,247,479 (Taniyama et al.). Finally, claims 20 and 21 were rejected as being unpatentable over Hamano by itself. In response, Applicants have amended independent claims 1 and 10 as indicated above.

More specifically, claims 2-9 and 11-22, which depend from independent claims 1 and 10, now clearly recite a device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle *with the nozzle forming individual liquid drops* of the drying fluid *and supplying the liquid drops* of the drying fluid onto a fluid face of a cleaning fluid.

Clearly this arrangement is *not* disclosed or suggested by Hamano by itself, the combination of Hamano and Bergman et al, the combination of Hamano and Kamikawa et al., the combination of Hamano and Fung et al., the combination of Hamano and Vellutato, the combination of Hamano and Takase et al, the combination of Hamano and Taniyama et al., or any other prior art of record. As mentioned above in the argument with regard to independent claims 1 and 10, Hamano *fails* to disclose or suggest any device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle *with the nozzle forming individual liquid drops* of the drying fluid *and supplying the liquid drops* of the drying fluid onto a fluid face of a cleaning fluid. Thus, Hamano *fails* to disclose or suggest the arrangement, as now set forth in claims 2-9 and 11-22.

Bergman et al. *fails* to provide for the deficiencies of Hamano. In particular, Bergman et al. *fails* to disclose or suggest any device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle *with the nozzle forming individual liquid drops* of the drying fluid *and supplying the liquid drops* of the drying fluid onto a fluid face of a cleaning fluid. Therefore, the combination of these two references would *not* produce a hypothetical arrangement that would meet the claimed invention as now set forth in claims 2, 3, 11 and 12.

Also, Kamikawa et al. *fails* to provide for the deficiencies of Hamano. In particular, Kamikawa et al. *fails* to disclose or suggest any device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle *with the nozzle forming individual liquid drops* of the drying fluid *and supplying the liquid drops* of the drying fluid onto a fluid face of a cleaning fluid. Therefore, the combination of these two

references would **not** produce a hypothetical arrangement that would meet the claimed invention as now set forth in claims 4, 5, 7, 13, 14 and 17.

Moreover, Fung et al. **fails** to provide for the deficiencies of Hamano. In particular, Fung et al. **fails** to disclose or suggest any device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle **with the nozzle forming individual liquid drops** of the drying fluid **and supplying the liquid drops** of the drying fluid onto a fluid face of a cleaning fluid. Therefore, the combination of these two references would not produce a hypothetical arrangement that would meet the claimed invention as now set forth in claims 6, 15 and 16.

In addition, Vellutato **fails** to provide for the deficiencies of Hamano. In particular, Vellutato **fails** to disclose or suggest any device or method that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle **with the nozzle forming individual liquid drops** of the drying fluid **and supplying the liquid drops** of the drying fluid onto a fluid face of a cleaning fluid. Therefore, the combination of these two references would not produce a hypothetical arrangement that would meet the claimed invention as now set forth in claims 9 and 22.

Also, Takase et al. **fails** to provide for the deficiencies of Hamano. In particular, Takase et al. **fails** to disclose or suggest any device that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle **with the nozzle forming individual liquid drops** of the drying fluid **and supplying the liquid drops** of the drying fluid onto a fluid face of a cleaning fluid. Therefore, the combination of these two references would not produce a hypothetical arrangement that would meet the claimed invention as now set forth in claim 18.

Finally, Taniyama et al. **fails** to provide for the deficiencies of Hamano. In particular, Taniyama et al. **fails** to disclose or suggest any device that involves introducing a drying fluid under a liquid condition within a processing vessel using a nozzle **with the nozzle forming individual liquid drops** of the drying fluid **and supplying the liquid drops** of the drying fluid onto a fluid face of a cleaning fluid. Therefore, the combination of these two references would not produce a hypothetical arrangement that would meet the claimed invention as now set forth in claim 19.

It is well settled in U.S. patent law that the mere fact that the prior art can be modified does **not** make the modification obvious, unless the prior art **suggests** the desirability of the

modification. Accordingly, the prior art of record lacks any suggestion or expectation of success for combining the references to create the Applicants' unique arrangement with a nozzle forming individual liquid drops of drying fluid and supplying the liquid drops of the drying fluid onto a fluid face of a cleaning fluid.

Therefore, Applicants respectfully request that this rejection be withdrawn in view of the above comments and amendments.

With regard to claims 2 and 11, the Office Action also acknowledges that "Hamano does not teach a substrate held at an angle with the drying vapor being applied at that same angle..." See Office Action at page 3. Thus, the Office Action relies upon Bergman et al. to show a substrate held at an angle with drying fluid applied at that same angle.

Bergman et al. *fails* to provide for the deficiencies of Hamano. Bergman et al. discloses a wafer carrier 14 that supports semiconductor pieces 15 in a processing chamber 12, and a plurality of processing chamber supply nozzles 18. However, Bergman et al. *fails* to show that the *semiconductor pieces 15* are housed or supported within the processing chamber 12 *in an inclined condition* at a predetermined *angle with respect to a vertical plane, and* liquid drops of drying fluid are supplied using the processing supply nozzles 18 with the *processing supply nozzles 18 inclined* at an *inclination angle substantially similar* to the predetermined *angle of the inclined substrates*, as now required by claims 2 and 11. Therefore, the combination of these two references would not produce a hypothetical device or method that would meet the claimed invention as now set forth in claims 2 and 11.

It is well settled in U.S. patent law that the mere fact that the prior art can be modified does *not* make the modification obvious, unless the prior art *suggests* the desirability of the modification. Accordingly, the prior art of record lacks any suggestion or expectation of success for combining the references to create the Applicants' unique arrangement as now set forth in claims 2 and 11.

Therefore, Applicant respectfully requests that this rejection be withdrawn in view of the above comments and amendments.

With regard to claim 18, the Office Action also acknowledges that "Hamano does not teach moving the nozzle closer to the substrate after it has been removed from the cleaning solution." See Office Action at page 5. Thus, the Office Action specifically relies upon Figures 9 and 10 and column 10, lines 42-63 of Takase et al. to disclose such features.

However, Takase et al. *fails* to provide for the deficiencies of Hamano. While Takase et al. discloses substrate drying/cleaning equipment with chemicals/ultra pure water nozzles, steam nozzles and IPA steam nozzles that are provided together, and are selectively opened, Takase et al. *fails* to disclose or suggest that these nozzles are moved towards substrates *following exhausting* of a cleaning fluid *from a processing vessel*. Accordingly, Takase et al. *fails* to disclose or suggest the means for moving a nozzle towards the substrates, as set forth in claim 18. Therefore, the combination of these two references would not produce a hypothetical device that would meet the claimed invention as now set forth in claim 18.

It is well settled in U.S. patent law that the mere fact that the prior art can be modified does *not* make the modification obvious, unless the prior art *suggests* the desirability of the modification. Accordingly, the prior art of record lacks any suggestion or expectation of success for combining the references to create the Applicants' unique arrangement as now set forth in claim 18.

Therefore, Applicants respectfully request that this rejection be withdrawn in view of the above comments and amendments.

New Claims 23-28

Applicants have added new claims 23-28 by the current Amendment. Applicants respectfully assert that the prior art of record, whether taken singularly or in combination, *fails* to disclose or suggest any arrangement with a drying fluid supplying section having a nozzle dimensioned and configured to *form individual liquid drops* of a drying fluid and supply the liquid drops of the drying fluid to a fluid face of a cleaning fluid, as set forth in claims 23-27.

Moreover, Applicants respectfully assert that the prior art of record, whether taken singularly or in combination, *fails* to disclose or suggest any arrangement with a drying fluid supplying section having a nozzle dimensioned and configured to *form liquid drops* of a drying fluid *having a predetermined range of widths* and supply the liquid drops of the drying fluid to a fluid face of a cleaning fluid, as set forth in claim 28.

Prior Art Citation

In the Office Action, additional prior art references were made of record. Applicants believe that these references do not render the claimed invention obvious.

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Appl. No. 09/936,618
Amendment dated December 23, 2003
Reply to Office Action of July 3, 2003

In view of the foregoing amendment and comments, Applicants respectfully assert that claims 1-28 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,


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